Local Government Handbook
Chapter 2 – Administration of Municipal Government
Section 4 – Computers in the Small Municipal Office

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INTRODUCTION

In the past few years, many municipalities have found that computers can assist in word processing, record keeping, accounting, budgeting and payroll, and have added them to their standard office equipment. This section provides an introduction to computers for organizations that do not currently have a computer, or are looking to upgrade an older system to a new one. Topics covered are:

- What a computer is and what it does.
- Computer uses.
- Time saved by use of computers.
- Selecting a computer to meet your needs.
- Purchasing a computer system.
- Glossary of terms and common computer acronyms and abbreviations.

Looking into the world of computers introduces you to a whole new language. Computer use has created brand new terms and words that are unique to the computer industry. In order to better understand computers and ensure the computer you are buying will meet your needs now and in the future it is important to have a working knowledge of computer terms. This section includes a glossary of computer terms and common acronyms and abbreviations that will improve your understanding of computers. Before proceeding any further, turn to the back of this section and get familiar with some of the terms you will encounter here and when talking with computer representatives/sales people.

Caution: Any new piece of equipment is going to take time to learn how to use. The more complex it is, the more time it will take. The amount of letters and documents typed, records handled, and bookkeeping entries may not be large enough that the organization would benefit from a large and complicated system to do these tasks. Sales representatives may emphasize the benefits of a larger more complicated computer system; however, only people in your organization know the operations well enough to determine what your needs are.

THE COMPUTER SYSTEM

A basic **computer system** includes a computer processor, monitor, keyboard, mouse, disk drives, printer, modem, and software programs (also called applications) to run the computer. A computer makes it possible to produce levels of work not dreamed of some years ago. With the proper computer programs, a computer can:

- Perform as an automated electronic typewriter and adding machine.
- Keep track of files, mailing lists, and inventories.
- Function as a full accounting system.
- Send messages or documents over long distances instantaneously.
- Make graphics, maps, and help create building designs.

COMPUTER SYSTEM USES

Using appropriate programs, computers can do many tasks, such as create graphics, maps, and computer-aided building designs, just to name a few. Computers are most useful though for performing routine tasks you do frequently.

1. **The Computer as a Typewriter**

Computers are commonly used the same way typewriters were in the past, the computer term for this is *Word Processing*. Using a word processing program, you can type information (data) and store it on a disk for future use. Storing information on the computer allows you to add, remove, change, or correct the information before printing it. An example of one of the ways a computer can simplify operations is by saving the monthly meeting agenda on the computer and updating it each month with the new topics. You would not have to type the entire agenda, just the changes. (For example, this document was originally typed into a computer eight years ago using a word processing program. Over the years as computers changed, it has been updated. The original document did not mention CD or DVD disk drives, as they had not yet been invented!)

NOTE: Computer word processing may not meet all your typewriting needs. You will still need a standard typewriter for filling out certain forms and carbon packs, so don't throw the old one away.

2. **The Computer as a Budgeting and Accounting Tool**

Another common use of a computer is as an automatic calculator. There are full accounting programs available that keep track of all of an organization's financial transactions and spreadsheet programs that can be formatted to automatically calculate certain transactions. If you are buying full accounting system software, such as Quickbooks®, it is better to start too small and graduate up than to overbuy in the beginning and never be able to get the program to operate correctly – this is frequently the case with first-time users of accounting software.

One of the best examples of how a spreadsheet program can save time is a financial report. A financial report is prepared each month with the same budget categories, but with changing numbers that need to be updated to reflect the activities for the new month.

Using a "spreadsheet" program you would enter all of your budget categories and numbers in preset columns. You can then tell the computer to calculate the numbers or perform other operations. For example, you might tell the program to add the numbers in the first column and put the answer next to the word "SUBTOTAL". Also, you might instruct the computer to add the new numbers in the first column to the numbers in the second column to create year-to-date totals. Any time you change any numbers in the spreadsheet, the computer can automatically update all totals, subtotals, averages, and percentages -- every number that depended on the ones you changed can automatically recalculate. By making use of this computer capability, substantial time can be saved and errors reduced. Microsoft Excel® is the most common spreadsheet program in use today, but there are others such as Lotus 1-2-3®. Keep in mind when shopping for a spreadsheet program that there is always a learning curve associated with any new program, so it is important to look at how easy the program is to learn and use.

Following is an example of a monthly financial report spreadsheet:

Monthly Expense Report
June, 2003

	JULY-MAY	JUNE	YEAR TO DATE
Administration & Finance			
Salaries	$16,790	$3,515	$20,305
Withholding Taxes	1,285	480	1,765
Travel & Per Diem	2,250	1,099	3,349
Supplies	963	170	1,133
Postage	298	107	405
Equipment	150	0	150
Telephone	3,454	798	4,252
Utilities	254	56	310
Insurance	750	508	1,258
Legal & Accounting	1,602	388	1,990
Admin & Finance Totals	$27,796	$7,121	$34,917

In the above example, a formula is set up by the user so all of the numbers in the year to *Year To Date* column and the *Administration & Finance Totals* row are automatically calculated by the program.

3. **The Computer as a Database**

Programs called "databases" are available that create mailing lists, inventories, and lists of names. Using the database program you can then search the data for specific information, such as an address or phone number.

For example, you could set up an inventory database of all your equipment valued over $500. For each piece of equipment you could then enter its value, serial number, model number, who it was purchased from, and when it was purchased. This information can then be used to quickly provide information on any piece of equipment. An example of how this might be useful is if the pump at the bottom of your water well breaks in the middle of winter, you can look up the model number in the database rather than having to spend the time, money, and hassle to pull the pump from the well to find out the manufacturer's name, model number, or horsepower rating.

One of the most common uses of databases is for address books and calendars. If you enter address, phone, and fax information into the computer database, you can easily look these up and/or change them when you need to. Calendar programs let you list and track events and other important date-specific information.

4. **The Computer as a Full Accounting System**

Programs can be purchased that will handle all aspects of bookkeeping. Setting up one of these

systems can be complicated, but the programs get easier to work with the more you use them. The data is entered, and the accounting program performs calculations, keeps summary totals, organizes the information for financial reports, prints checks, prints invoices, and keeps detailed employee records. This type of program, which is designed to keep track of all of the organization's financial, billing, and customer information can be a really useful tool. There are a variety of accounting programs available and the level of skill required to operate them varies, depending on how complicated the system is. One important point to remember is that the more operations a program performs, the more complicated it is to use and more training and skill is required to use it. It is usually best to start with a simpler version of a program and work up to a more complicated system. Even an experienced user can have problems learning the different details and data entry procedure for a computerized accounting system.

5. **The Computer as a Communications System**

Computers can provide a method of communication over long distances. To enable this communication method the computer uses a modem to send a message or file and uses some sort of software program to tell the computer how to send it. The most common type of software used is an electronic mail or *e-mail* program. Using an e-mail program you can send and receive all types of documents, graphics, etc. The other common type of software used to get information from other sources is Internet browsing software. This allows the user to look for information that others have put on their *web sites* and read, print, or copy it. The information you are reading right now is on a web site.

The costs of using a system for telecommunication depends on the way that you are connected to the system (phone or satellite) and, of course, the length of time you are using the system or the size of the document being transmitted. In some cases using the computer as a communication system can save money in long-distance phone charges and postage. Using a computer as a communication system is currently a challenge in some rural communities because of phone line conditions; however, efforts are underway to try to address this issue. Check with local phone and cable companies to find information on availability of service and charges for Internet connection. In some cases this method can represent a cost savings and in some cases not.

HOW MUCH TIME CAN A COMPUTER SAVE?

How much time a computer can save depends on how the staff spends its time and other factors such as:

- The type of computer you use.
- The complexity and frequency of the tasks you are doing on the computer.
- How well trained the staff is in using the computer.
- How often staff changes.

Many people report that they set up their first computer in half a day to two days, depending on the system. It may take one to two days to learn the basics of a computer word processor. After that, the amount of time you will save is directly related to the amount of time spent in training and learning to use the programs correctly.

There are usually many ways to do any one task on a computer. Training or user manuals are designed so the user will learn all of the steps and gain a better understanding of how the computer works. Getting advanced training can help this process by learning shortcuts that can speed things up. As an example:

Windows computers will allow you to have several software programs running at once. Generally you are taught to open one program, do what you need to do and then close the program when you are done. It is not uncommon for a beginner to be working in one word processing document, then close that document to work on another word document, rather than just opening the new document. There is nothing wrong with this, but it can take more time to do. As a shortcut you could just open the second document without closing the first. You can then switch between the two documents quickly.

SELECTING A COMPUTER SYSTEM TO MEET YOUR NEEDS

How can you decide which computer system to buy? Different computers have different advantages in cost, power, ease of set-up, and support by the seller if something goes wrong.

When Choosing a Computer System:

- Identify the tasks you want the computer to do.
- Determine what software (programs) are available to do the work you have identified.
- Select the best-priced hardware (the computer system), in the range your budget can afford, that can handle the software needed to accomplish the work you have identified, and that has the operating features you need. (Again, it is usually best to stick with well-known name brands.)

The following should be considered when looking at computer systems:

Identify tasks — Carefully consider what tasks you want the computer to do, such as word processing, spreadsheet, filing, full accounting, e-mail, graphics (such as flyers or newsletters), mapping, etc. Once you have identified the tasks, look at the software that can perform these tasks.

Determine available software — There are usually a lot of software programs available that can perform each of the tasks that you identify. How easy the program is to use should be an important consideration - you should look for the software that does what you want in the easiest manner. Also, buying the same system as one already being used in your area can be a benefit because if you have a question, you may be able to talk to someone locally about possible solutions before you have to call a help line.

When selecting software, it is a good idea to get the advice of a computer specialist, someone who works with programs on a day-to-day basis. You might also contact other organizations in nearby communities that have similar computing needs to find out what software they use for the tasks you have identified.

Selecting hardware — A computer is basically a metal and plastic box with lots of parts

(components) in it and attached to it. The type and quality of components determines how well it will run and what maintenance it may require. Following are some suggestions on what you want to look for in a system:

Processor:

The processor is the nerve center of your computer and processor speed will determine how fast your computer will operate. When buying a computer, it is a good idea to first identify the programs you want to use and match the processor speed to the requirements of the program, while also giving some thought to possible future needs. Frequently, even the lowest end (slowest) processor works faster than you will need. It is like asking "do I want a 120 horse or 150 horse engine on my skiff" when you really only need a 50-60 horse motor and will never use the bigger and more expensive engine. As of this writing, most small business programs only need a 0.6GHz processor, but the choices currently range from 1.3GHz up to 3.0GHz.

Memory:

This is what allows the computer to open up and run programs. The more memory (often referred to as RAM) you have, the quicker it will operate; especially if you have several programs open at once, such as Word, Excel, Quickbooks, and E-mail. When you use a program it is pulled up from the system hard drive and stored in memory. If the program(s) running require more system memory than what is available, the system will use the hard drive as additional memory, which slows down the system and defeats the purpose of processor speed. As of this writing you should have at least 256MB, and preferably 512MB of memory, or more if you can afford it, to operate the system efficiently.

Monitor:

Important factors to consider when buying a monitor are monitor size and image resolution. If you are doing accounting or spreadsheets, it is really nice to have a 19" monitor. If you are just doing letters, a 17" monitor is fine. The number of screen pixels (small square dots) determines image quality. Flat screen monitors are less bulky and weigh less, but more expensive. Another factor to consider is the desk space that will be taken up by the monitor. A Cathode Ray Tube (CRT) screen is heavy and large and a Liquid Crystal Display (LCD) is small and light.

Hard Drive:

The hard drive is what stores your documents. The smallest drive currently available is 20GB, although many older computers have much less storage capacity. Again, it is important to look at the software you will be using on the system and what your future needs might be. Unless your needs justify it, getting a large hard drive is just paying more money for something that you may not need.

Network Card:

If you are connecting to the Internet through a satellite connection (such as Starband) or connecting two computers together to share files or a printer, you will need a 10/100 network card to connect.

Modem:

Most modems are 56K. A 56K modem is the maximum speed you can get with a "dial-up" modem over a phone line. To get more speed, you have to use DSL or Cable modems. A 56K modem will allow you to connect to the Internet through the phone line until the faster satellite connection is available.

Ports:

You will want to make sure that the computer has at least 2 USB ports. These are what you will use to attach components such as printers, scanners, or digital cameras to your computer. They also may be used for the monitor, mouse, and/or UPS.

Speakers:

Prices for external speakers vary. Unless there is a justifiable need, it isn't necessary to spend a lot of money on these. The cheaper ones available are still pretty good. Some computers include "built-in speakers" but the quality may not be as good as plug-in speakers.

CD or DVD:

If you have the choice, get a DVD-ROM/CD-RW combo drive (this is the new standard). This will allow you to copy your data onto a CD disk instead of a 3.5" floppy disk. The CD-RW drives come in different speeds.

Operating System:

The operating system is responsible for the many routine tasks required to keep a computer running, such as moving the pointer when you move the mouse, providing icons and menus, running other programs such as a word processing, controlling the various disk drives and the screen, and so on. There are many different types and manufacturers of operating systems. Examples of operating systems are Windows XP Home, or Windows XP Pro, and Apple OS X.

Power Protection:

A UPS (uninterrupted power supply) is particularly important if the computer will be exposed to fluctuations in the electrical current or "brown outs," which is frequently the case in rural areas. A UPS filters out the power surges and brownouts. If the power goes off, a UPS will run the computer on a battery for a while and allow you to save your work before shutting down. UPS's are sized depending upon how much power your system uses. Don't get one that is too small!

Printer:

The choices are dot matrix, ink jet, laser, or all-in-one. The only reason to get a dot matrix is to print multi-part (carbon pack) forms. Ink jet printers provide an easy and relatively cheap way to print color. If you are printing a lot of black and white documents (like invoices each month), a laser printer is your best bet. An all-in-one printer can include a printer, copier, fax, and scanner in one machine. As with most all-in-one devices they don't do any one job as good as a stand-alone machine, but they are less expensive than buying a printer, fax machine, and copier separately. You can connect more than one computer to a printer so several computers print to one printer. You can also connect more than one printer to a single computer so you could have a dot-matrix printer for invoices and an inkjet for most other documents.

Impact or dot-matrix printers: These were the first type of printers developed. They work by striking a ribbon and pressing the ink onto the paper. They are still used today, especially if you need to print multiple copy (carbon pack) forms, such as W-2 forms. Currently, these are the only types of printers that will print multiple copy (carbon pack) forms. Impact printers print in whatever color ribbons you have loaded - generally this is black.

Inkjet printers: The most common printer for personal computers today, they are quicker and quieter than impact printers. They also print in color by spraying the ink onto the sheet of paper. (The ink will run if it gets wet.) The cost and availability of the ink cartridge should be looked at before buying an inkjet printer.

Laser Printers: Laser printers print faster than inkjet printers do and the cost per copy is lower. The purchase price is much higher though, often 2-3 times higher. Color laser printers are double the cost of black printing ones. Unless you print at least 200 or more pages a month, inkjet printers are probably a better choice.

All-In-One Printers: If you do not have a copier, fax machine, scanner, or a printer, you may want to look into an all-in-one printer. It will do all of these functions and cost much less than buying three or four separate machines. All-in-ones are usually inkjet printers, so they can do color. As with most multi-function tools, they do all the tasks well, but none of them are as good as a single purpose machine. So if you make a lot of copies, or send a lot of faxes, you will be better off purchasing separate machines.

Software - Software is the computer program(s) or instructions that tell the computer what to do and dictates what it can do. What your computer is capable of doing depends on what type of software you buy to run it. Depending on where you buy your computer it may come with all of the software you will need. If you want to do some special tasks, such as accounting or mapping, you may need to buy additional software programs. Frequently you will have to buy updates, especially in cases where the information changes regularly, such as payroll programs that must be updated to change the tax tables or virus protection programs that need updating to deal with the latest virus.

PURCHASING A COMPUTER SYSTEM

Frequently, organizations in rural Alaska are better off purchasing a computer directly from a major manufacturer who offers packages of hardware and software, technical assistance over the phone, and a multi-year service policy. Discount store prices are attractive, but don't usually offer adequate technical support. Be sure to ask about technical support by phone. Some vendors will offer an on-site technical support/service package; however, this is not realistic in rural Alaska because of travel costs. There are many vendors to choose from and it is best to stick with the more popular name brands.

Suggestions for Purchasing a Computer

1. As mentioned previously, it is a good idea to buy a system that is similar to what others near you are using. One way to find out what others in the community are using is to contact a local high school teacher and find out what kind of computers the school is using in the classroom. The availability of teachers and students who know how to operate the computer could prove useful. Also, you may be given the opportunity to see computers at work in the school, which can help prepare you to evaluate the choices of hardware and software.

2. Find a dealer who speaks plain English, not computer jargon, who is willing to spend time with you. If someone will not spend time before the sale, they probably will not be much help after you buy the system. Buying a computer system is a little like buying a car; the dealer can be as important as the brand.

3. Buy all of your hardware and, if possible, your software from a single source at the same time. Otherwise, it may be difficult to make the equipment function together and you may be told that the problem lies in other parts of the system. It is possible to save a few hundred dollars with an alternate brand, or source, for an accessory or piece of software, but then spend weeks getting it to function with your system.

4. Sit down and use the actual hardware, and especially the software, before you buy. Do not simply watch a demonstration of its use. Ask for names of customers with similar needs and experience to yours and check with them to see how their use of the equipment, software, and follow up dealer services worked out. Contact organizations in neighboring communities and find out what their experience is with computer systems.

5. Stick with major established brands from mainstream sources, as they often provide the best technical support and repair services.

Glossary of Computer Terms

Application: Another word for computer software or program.

Bit: The smallest unit of information in a computer. Eight bits equal one byte.

Boot: Means to "start up" the computer - the process of loading up the operating system. If the computer is already running, it is called rebooting.

Browser: A program used to look at information on the Internet. Common examples are Microsoft Internet Explorer® and Netscape Navigator®.

Bug: A bug is a mistake in the software design that interferes with the intended performance.

Byte (B): A unit of measurement that measures the storage space on a computer hard drive or storage device. A byte is typically eight bits, but some manufacturers use non-standard byte sizes.

Bytes are usually measured in large groups, such as:

- kilobyte (often abbreviated as K or KB) means one-thousand twenty-four (1024) bytes;
- megabyte (often abbreviated as M or MB) means one-thousand twenty-four (1024) K; and
- gigabyte (often abbreviated as G or GB) means one-thousand twenty-four (1024) M.

Memory is typically measured in kilobytes or megabytes and disk space is typically measured in megabytes or gigabytes. (Note some hardware manufacturers will use the smaller 1000 multiplier on M & G quantities, rather than 1024, to make their disk drives seem larger than they really are - buyer beware.)

Cathode Ray Tube (CRT): Monitor type that uses a tube like a conventional television. They are fairly large and heavy and are rapidly being replaced with the Liquid Crystal Display (LCD).

Compact Disk (CD): Compact disks are round disks that transport and store data. Each compact disk is capable of holding up to 640 megabytes, and is inserted into a CD drive to function. See also Disk.

Compact Disk-Read Only Memory (CD-ROM): Memory whose content is preset and cannot (usually) be changed by the user and does not lose data when power is turned off. See also ROM.

Celeron: A PC processor – usually cheaper than the Pentium, but also less powerful.

Compatible: Pieces of equipment that can work together; incompatible pieces can't. "PC Compatible" means that it can run any PC programs and use any standard PC peripherals (attachments).

Central Processing Unit (CPU): The nerve center of the computer - everything flows through it. Often just called "the processor". On any computer the speed of its processor, usually measured in megahertz (MHz) or gigahertz (GHz), is very important. Generally, the faster the processor, the faster the computer operates. The processor is the part of the computer that actually works with the data and runs the programs. Some computers have more than one processor and are thus called "multiprocessor".

Cursor: A point of attention on the computer screen often marked with an arrow, a flashing line or block. Text typed into the computer will usually appear at the cursor. The location of the cursor can be moved using the mouse or keyboard.

Database: A database is a collection of information (or data), typically organized to make common retrievals easy and efficient. For example, a list of all water & sewer customers and billing records could be compiled in a database.

Digital Subscriber Line (DSL): A method of connecting a computer to the Internet instead of using an ordinary phone line and computer modem. DSL produces a much faster (broadband) connection.

Disk: A type of information storage device, such as an internal hard disk (typically labeled the "C:" drive), a floppy disk (typically used in the "A:" drive), a compact disk or CD (typically used in the "D:") drive, or a "zip" disk (a peripheral storage device). A disk will not forget its data when it loses power. Some disks can be removed from their drives, some cannot. Generally it is possible to write new information to a disk in addition to reading data from it, but this is not always the case.

Dots Per Inch (dpi): A measure of picture quality, often used to measure printer capabilities. The higher the number of dots per inch printed, the better the quality. Also see Resolution.

Drive: A piece of hardware for storing and/or retrieving data. A Drive is the hardware that reads and/or writes information from the computer to a disk. Some drives (such as disk drives, zip drives, and tape drives) are typically capable of having new data written to them, but some others (like CD-ROMs or DVD-ROMs) are not. See also Disk or Hard Drive.

Driver: A driver is a piece of software that works with the operating system to control a particular piece of hardware, such as a printer, a scanner, or a mouse.

Digital Versatile Disk (DVD): Similar to the standard CD, but it can hold far more information, DVD drives are now standard on most new PCs. Widely used for high-quality digital movies.

DVD Drive: This drive is used to read DVD disks and can also usually read CDs.

E-mail: "Electronic mail" makes it possible to send and receive information over the Internet. In addition to sending mail messages, documents, pictures, software, and music can be sent to an e-mail address as an "attachment." Each e-mail address is unique and always has an "@" symbol showing who the mail provider is. Appropriate software, Internet connection, and an e-mail account are required to use this method of communication. See also Internet Service Provider.

Flat Screen: Refers to a monitor's screen surface. Flat screens are found in both CRT and LCD type computer monitors. It is important to be aware of which type you are buying. See also Cathode Ray Tube and Liquid Crystal Display.

Floppy Disk: A type of removable information storage disk used with a floppy disk drive. Floppy disks (also sometimes called a "diskette") do not hold as much data as CDs (1.44 megabytes compared to 640 megabytes for a CD). Though floppy drives are common equipment on most older computers they are now frequently sold as peripherals and being replaced by CD drives.

Hard Drive: A storage disk located inside the computer (typically labeled the "C:" drive). It is the computer's main storage for programs and data. Hard drives come in different sizes and all PCs are fitted with them, sometimes more than one. Hard drives can read and write information very quickly and are the preferred place to store programs and data. Also sometimes referred to as HD or HDD.

Hardware: Hardware is the part of your computer that you actually see and touch. The screen, keyboard, CPU housing are hardware. The hardware cannot function without software/programs.

Gigabyte (G or GB): Unit of measurement for pieces of information - approximately 1 billion bytes, 1 million kilobytes, or one thousand megabytes. The gigabyte is the largest measure in common use today.

Gigahertz (GHz): billions of cycles per second. Often used as a measurement of a PC processor's speed and power, with bigger numbers meaning a bit more speed, and a higher price. 1.0 Gigahertz =1,000 Megahertz.

Internet: Connects millions of computers together, allowing the user to find information, "chat" with other users, download software, read news, purchase goods and services, and much more. The Internet consists of many millions of pages of text and images published by anyone in a standardized format. A particular person or company's area is called a website. A "browser" program, such as Microsoft Internet Explorer or Netscape Navigator, is required to access the Internet. Also referred to as the "World Wide Web" or "Web."

Internet Service Provider (ISP): You must have some sort of Internet Service Provider in order to access the Internet. ISP's allow you to dial into one location, which then provides you with a link to the Internet.

Kilobits Per Second (Kbps): A measure of speed of information flow, usually over a modem. A Kilobit is a thousand bits.

Kilobyte (K): Unit of measurement for pieces of information – a measure of spaces, actually 1,024 Bytes (characters), but in practice frequently rounded down to 1,000. Often written as just K, e.g., 250 K is 250 Kilobytes (250,000 bytes or characters).

Keyboard: What you use to type in information on a computer - similar to a keyboard on a typewriter; however, they usually have extra keys with added features.

Laptop: A portable computer smaller than a desktop computer so that it can be easily transported, but can do pretty much anything a desktop system can do. They can run for a short time (usually two to five hours) on a rechargeable battery or be plugged in for long-term use. They usually have smaller screens, keyboards, and a built in pointing device. Also called a notebook.

Liquid Crystal Display (LCD): A type of monitor, popular due to its slim shape and lighter weight. LCD monitors are sometimes easier on the eyes.

Memory: Information storage space. The most common types of memory are RAM and ROM.

Modem *(MOdulator/DEModulator*)**:** A modem is a piece of hardware that connects the computer to a telephone line and allows two computers to communicate over ordinary phone lines. Modems can either be cards that are built into your computer, or an external device plugged into the computer by cables. Modems operate at different speeds. 56K is the normal speed for a modem. When connected to a modem and phone line, the computer can dial another computer, send and receive faxes, act as a phone message machine, connect to the Internet, or make phone calls.

Megahertz (MHz): Millions of cycles per second. Most often used as a measurement of a PC processor's speed and power, with bigger numbers meaning more speed and a higher price. 1000 Megahertz = 1 gigahertz.

Monitor: The screen for viewing computer information (looks like a small TV screen).

Motherboard: The main circuit board in the computer - all the other bits and pieces are plugged into it. The motherboard contains valuable system information and data, and is what other hardware connects to. Without the motherboard, your machine would not function.

Mouse: A hardware device used to move a pointer "cursor" around on the computer screen. There are many different types, but all work to give you added capability to move around on your computer. Moving the mouse around and clicking its buttons will initiate action without using the keyboard.

Network: A network typically means a group of computers working together. It can also refer to the physical wire connecting the computers. A network provides a way of linking several computers together so that their users can share resources such as printers and documents, often via a central computer called a server.

Network Card, Network Interface Card (NIC): An Expansion card that lets a PC communicate with a network -- a NIC card is required for broadband Internet access.

Operating System (OS): Every computer has an operating system, which is a sort of master program that runs automatically when you switch the computer on and continues running until you switch it off. It is responsible for the many routine tasks required to keep a computer running, such as moving the pointer when you move the mouse, providing icons and menus, running other programs such as a word processor, controlling the various disk drives, the screen, and so on. There are many different types and manufacturers of operating systems. Examples of common operating systems are Microsoft Windows, Windows XP, and Apple OS X.

Palm Pilot: A brand of small portable computer that theoretically fits into the palm of your hand. See also Personal Digital Assistant.

Personal Computer (PC): Refers to any desktop, laptop, or notebook computer system.

Peripheral Component Interconnects (PCI): A type of high-speed connection between hardware and the CPU.

Personal Digital Assistant (PDA): A small battery-powered computer intended to be carried around by the user rather than left on a desk. A PDA runs software similar to other computers and can exchange data with desktop systems, but, unlike a laptop, is more limited in what it can do because of its size. A PDA is most often used for storing phone numbers, calendars and appointments, and other applications that need to be portable. The most well known PDA is the Palm Pilot, but other common types include Newtons, Psions, Zauri, Zoomers, and Windows CE hand-helds.

Pentium: A PC processor (or CPU) manufactured by Intel. As of this writing, the latest generation is the Pentium 4, but many new PCs still use the Pentium 3.

Peripheral: Anything that plugs into the computer, such as keyboard, printer, etc. A peripheral needs software installed on the computer to operate the peripheral.

Pixel *(picture cell)***:** All computer screen images and printed images are made up of pixels, small square dots - the smaller the pixels, the higher the image quality. Image quality is usually measured in Megapixels - the higher the number, the better the image. See also Dots Per Inch.

Port: A socket on a computer (usually on the back) that is used to plug in extra hardware such as a printer or modem.

Platform: Is defined by both the processor type on the hardware side and the operating system (OS) type on the software side. Computers belonging to different platforms cannot typically run each other's programs, unless the programs are written in a universal language like Java.

Processor: The nerve center of the computer: everything flows through it. See Central Processing Unit.

Program: A set of instructions that tell a computer how to do something. Any word processor, spreadsheet, database, game, or any other tool you may use on a computer is a program (often a group of programs). Programs are also referred to as computer software or application. Program is also the verb that means to create a program and a programmer is one who programs.

Random Access Memory (RAM): The computer's short-term memory. RAM is responsible for running the program(s) you are working with and storing information you are working on while the computer is on. If the information is not saved before the computer is turned off (or the power goes out), the information is lost. The amount of RAM space available determines how many programs you can use at the same time and how fast your computer can present information on the screen.

Reboot: Restart the computer either by shutting it down properly and restarting it (a soft reboot), or just switching it off and on again (a hard reboot - should only be used as a last resort).

Resolution: The quality of an image. When printing or working with images, the resolution is usually measured in dots per inch (DPI) - the more dots per inch, the higher the quality of the image but the larger the file needed to store it.

Rewriteable: A special type of reusable CD or DVD which you can write to, delete the contents, and write to again, theoretically forever. (A conventional CD or DVD can't be changed once they have been written.) There are presently several different incompatible formats.

Read-only Memory (ROM): Similar to RAM, but it cannot be altered and does not lose its contents when power is removed.

Router: A device used to connect networks together. As an example, a router lets several PCs share one Internet connection. A relative of the hub, but more powerful.

Save: Copy whatever you are working on from memory (RAM), which is lost when you switch off the computer, to permanent storage. It is a good idea to save frequently when you are working on something important, in case there is a sudden power loss or other unforeseen event. When you save a document, it is written to a hard disk or other permanent storage device.

Scanner: A piece of hardware that can make copies of printed images and text and create a computer file of what is copied to use on a computer. For example, a document can be scanned into the computer and updated or e-mailed, etc., or a photograph can be scanned and copied into a document, viewed on a web page, or e-mailed.

Small Computer System Interface (SCSI): A method to connect other components to your computer. Often called "scuzzy," these are ports (much like electrical outlets) that allow you to use devices like printers and scanners.

Serial Ports: A type of socket for plugging hardware into the CPU. Most PCs have two. Most often used to plug in a modem or mouse; however, on many modern computers a modem is built into the computer and the mouse has its own separate port. Also see Universal Serial Port or USB.

Server: A computer at the center of most networks that provides centralized file storage and other services to other computers.

Software: Software is a set of instructions that you install on your computer and that make it perform certain operations (the programs that run the computer). Without these instructions the computer cannot operate. The operating system, applications, and drivers are all software.

Sound Card: A card that is added to the hard drive to make sounds. Almost all modern PCs soundcards are built into the motherboard instead of being added.

Spreadsheet: Formatted information created with a database program. Spreadsheets can be used to format tables, perform calculations, and set up financial balance sheets. The best-known spreadsheet programs are Microsoft Excel® and Lotus 1-2-3®.

Terabyte: Unit of measurement for pieces of information - approximately 1 trillion bytes, 1 billion kilobytes, 1 million megabytes, or 1000 gigabytes.

Uninterrupted Power Supply (UPS): Heavy-duty batteries that back up the computer's power source and help smooth out the power supply. These are especially useful wherever power fluctuations or "brown outs" are common. A UPS will provide time to save work and may prevent hardware damage.

Universal Serial Bus (USB): A fast type of serial port (connector) that is used to attach extra devices such as a digital camera or scanner to a PC. Standard on new PCs starting around 1998.

Virus: A program created to cause computer problems. Viruses were originally designed to attach themselves to programs on a disk, then "hide" in the computer's memory once the host program is executed and "infect" other disks. Some viruses are spread by e-mail disguised as an attachment. (It is best to save an attachment to your desktop or other storage area before opening it.) Also see Virus Protection.

Virus Protection: A program that guards against computer viruses, either by lurking in memory and checking everything for viruses as you go along, or by scanning some or all of the files on the computer at a time you specify. Virus protectors need to be updated frequently to guard against new types of virus. Examples of virus protection programs include Symantec Utilities Anti-virus®, Norton®, and McAfee®.

World Wide Web (WWW): See Internet.

Wide Area Network (WAN): A sort of group of networks connected together.

Webserver: A computer that gathers and/or stores World Wide Web pages and provides them over the Internet on request.

Windows: A family of operating systems from the Microsoft Corporation. As of this writing, the latest version is Windows XP.

Word processor: A program used to create text documents such as letters and memos, etc. Examples of word processing programs are Microsoft Word®, WordPerfect®, StarOffice Write, AppleWorks, and GeoWrite. Heavier duty work, such as newsletters and multi-color publications, can be done with a desktop publisher, such as Microsoft Publisher® or PageMaker®.

ZIP: (WinZip®) A way of making files smaller (compressing) either to fit into restricted storage space or to speed up transmission over the Internet. This free software is commonly used to make very large documents and files smaller.

Zip Drive: (Iomega®) A special drive for high-capacity removable data disk cartridges, often used for making backups and storing a lot of data than a floppy disk. Now being replaced by CD and DVD Writers.

Common computer acronyms and abbreviations

CD - Compact Disk
CD ROM - Compact Disk-Read Only Memory
CPU - Central Processing Unit
CRT - Cathode Ray Tube
DPI - Dots Per Inch
DSL - Digital Subscriber Line
DVD - Digital Versatile Disk
G – Gigabyte
GB – Gigabyte
GHz – Gigahertz
ISP - Internet Service Provider
Kbps - Kilobits Per Second
K – Kilobyte
KB – Kilobyte
LCD - Liquid Crystal Display
M – Megabyte
MB - Megabyte
MHz – Megahertz
NIC - Network Card, Network Interface Card
OS - Operating System
PC - Personal Computer
PCI - Peripheral Component Interconnects
PDA - Personal Digital Assistant

RAM - Random Access Memory
ROM - Read Only Memory
SCSI - Small Computer System Interface
UPS - Uninterrupted Power Supply
USB - Universal Serial Bus
WAN - Wide Area Network
WWW - World Wide Web